PTO/SB/08A (08-03)

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE STATEMENT BY APPLICANT

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Sheet 1 of 7

Complete if Known	
Application Number	10/810,350
Filing Date	March 26, 2004
First Named Inventor	Carl L. Hansen
Art Unit	1722
Examiner Name	Robert M. Kunemund
Attorney Docket Number	20174C-004960US

U.S. PATENT DOCUMENTS

Examiner Initials*	Cite No.[1]	Document Number Number Kind Code[2] (*if known*)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
RK	A1	US-4,992,312	02-12-1991	Frisch	
RK	A2	US-5,788,468	08-04-1998	Dewa et al.	
RK	A3	US-2001/0041357 A1	11-15-2001	Fouillet et al.	
RK	A4	US-6,345,502 B1	02-12-2002	Tai et al.	
RK	A5	US-6,409,832 B2	06-25-2002	Weigl et al.	
RK	A6	US-6,767,706 B2	07-27-2004	Quake et al.	

FOREIGN PATENT DOCUMENTS

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RK	C1	"Biochips," Nature Biotechnology, Vol. 18, Supplement 2000, pp. IT43-IT44, 2000	
	C2	"Chapter 9: Microfluidic Devices," Micromachined Transducers Sourcebook, pp. 779-882, 1998	
	C3	"Electro Microfluidic Dual In-Line Package (EMDIP)," Sandia National Laboratories, 2 pages, no date	
	C4	"Last Chance For Micromachines," The Economist Technology Quarterly, printed from website http://www.economist.com/science/displayStory.cfm?Story_ID=442930 on 1/25/2001, 8 pages, 12/7/2000	
	C5	ABOLA, ENRIQUE et al., "Automation Of X-Ray Crystallography," Nature Structural Biology, Structural Genomics Supplement, pp. 973-977, 11/2000	
	C6	ANDERSEN, GREGERS ROM et al., "A Spreadsheet Approach To Automated Protein Crystallization," Journal of Applied Crystallography, Vol. 29, pp. 236-240, 1996	
	C7	ANDERSON, ROLFE C. et al., "Microfluidic Biochemical Analysis System," Transducers '97, 1997 International Conference on Solid-State Sensors and Actuators, Chicago, Illinois, pp. 477-480, 6/16-19/1997	
	C8	ANGELL, JAMES B. et al., "Silicon Micromechanical Devices," Scientific American, pp. cover, 44-55, 4/1983	
	C9	ARMANI, DENIZ et al., "Re-Configurable Fluid Circuits By PDMS Elastomer Micromachining," IEEE Int. Conf. Micro Electro Mech. Syst. Tech. Digest, Vol. 12, pp. 222-227, 1999	
	C10	BALLANTYNE, J. P. et al., "Selective Area Metallization By Electron-Beam Controlled Direct Metallic Deposition," J. Vac. Sci. Technol., Vol. 10, No. 6, pp. 1094-1097, 11/1973	
	C11	BELGRADER, PHILLIP et al., "Rapid Pathogen Detection Using A Microchip PCR Array Instrument," Clinical Chemistry, Vol. 44, No. 10, pp. 2191-2194, 1998	
	C12	BERRY, MICHAEL B., "Protein Crystallization: Theory And Practice," Excerpts from Doctoral Thesis, 36 pages, 9/17/1995	
	C13	BLOOMSTEIN, T. M. et al., "Laser-Chemical Three-Dimensional Writing For Microelectromechanics And Application To Standard-Cell Microfluidics," J. Vac. Sci. Technol. B, Vol. 10, No. 6, pp. 2671-2674, 11/1992	
	C14	BOUSSE, LUC et al., "Electrokinetically Controlled Microfluidic Analysis Systems," Annu. Rev. Biophys. Biomol. Struct., Vol. 29, pp. 155-181, 2000	
	C15	BRUSH, MICHAEL, "Automated Laboratories," The Scientist, Vol. 13, No. 4, 10 pages, 2/15/1999	
RK	C16	BURBAUM, JONATHAN J. et al., "New Technologies For High-Throughput Screening," Current Opinion in Chemical Biology, Vol. 1, pp. 72-78, 1997	

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RK	C17	CALKINS, KATHRYN, "Mycometrix: Rubber Chips," BioCentury, 2 pages, 10/16/2000	
	C18	CHAYEN, NAOMI E., "A Novel Technique To Control The Rate Of Vapour Diffusion, Giving Larger Protein Crystals," Journal of Applied Crystallography, Vol. 30, pp. 198-202, 1997	
	C19	CHAYEN, NAOMI E. et al., "An Automated System For Micro-Batch Protein Crystallization And Screening," J. Appl. Cryst., Vol. 23, pp. 297-302, 1990	
	C20	CHAYEN, NAOMI E., "Comparative Studies Of Protein Crystallization By Vapour-Diffusion And Microbatch Techniques," Acta Cryst., Vol. D54, pp. 8-15, 1998	
	C21	CHAYEN, NAOMI E. et al., "Microbatch Crystallization Under Oil - A New Technique Allowing Many Small-Volume Crystallization Trials," Journal of Crystal Growth, Vol. 122, pp. 176-180, 1992	
	C22	CHAYEN, NAOMI E. et al., "New Developments Of The IMPAX Small-Volume Automated Crystallization System," Acta Cryst., Vol. D50, pp. 456-458, 1994	
	C23	CHOU, HOU-PU et al., "A Microfabricated Rotary Pump," Biomedical Microdevices, Vol. 3, No. 4, pp. 323-330, 2001	
	C24	CHOU, HOU-PU et al., "Integrated Elastomer Fluidic Lab-On-A-Chip-Surface Patterning And DNA Diagnostics," Proceedings of the Solid State Actuator and Sensor Workshop, Hilton Head, South Carolina, 4 pages, 2000	
	C25	CHOU, HOU-PU et al., "Multiple Disease Diagnostics On A Single Chip," Biophysics Lab, Caltech, pp. 1-4, 3/1/2000	
	C26	COX, M. JANE et al., "Experiments With Automated Protein Crystallization," J. Appl. Cryst., Vol. 20, pp. 366-373, 1987	
	C27	EISELÉ, JEAN-LUC, "Preparation Of Protein Crystallization Buffers With A Computer-Controlled Motorized Pipette - PIPEX," J. Appl. Cryst., Vol. 26, pp. 92-96, 1993	
	C28	FENNA, R. E., "Crystallization Of Human α-Lactalbumin," J. Mol. Biol., Vol. 161, pp. 211-215, 1982	
	C29	FETTINGER, J. C. et al., "Stacked Modules For Micro Flow Systems In Chemical Analysis: Concept And Studies Using An Enlarged Model," Sensors and Actuators B, Vol. 17, pp. 19-25, 1993	
	C30	FOLCH, A. et al., "Molding Of Deep Polydimethylsiloxane Microstructures For Microfluidics And Biological Applications," Journal of Biomechanical Engineering, Vol. 121, pp. 28-34, 2/1999	
	C31	FOX, KRISTIN M. et al., "Crystallization Of Old Yellow Enzyme Illustrates An Effective Strategy For Increasing Protein Crystal Size," J. Mol. Biol., Vol. 234, pp. 502-507, 1993	
RK	C32	GALAMBOS, PAUL et al., "Electrical And Fluidic Packaging Of Surface Micromachined Electro-Microfluidic Devices," 8 pages, no date	

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RK	C33	GREENE, CHANA, "Characterizing The Properties Of PDMS," pp. 1-11, Summer 2000	
	C34	GUÉRIN, L. J. et al., "Simple And Low Cost Fabrication Of Embedded Micro-Channels By Using A New Thick-Film Photoplastic," Transducers '97, 1997 International Conference on Solid-State Sensors and Actuators, Chicago, Illinois, pp. 1419-1422, 6/18-19/1997	
	C35	HICKS, JENNIFER, "Genetics And Drug Discovery Dominate Microarray Research," R&D Magazine, pp. 28-33, 2/1999	
	C36	HORN, HOWARD, "Lab Chips Sector: Microtechnologies Are Changing Healthcare And More," Life Sciences, pp. 19-21, 3/20/2001	
	C37	JO, BYUNG-HO et al., "Fabrication Of Three-Dimensional Microfluidic Systems By Stacking Molded Polydimethylsiloxane (PDMS) Layers" SPIE, Vol. 3877, pp. 222-229, 9/1999	
	C38	JO, BYUNG-HO et al., "Three-Dimensional Micro-Channel Fabrication In Polydimethylsiloxane (PDMS) Elastomer," Journal of Microelectromechanical Systems, Vol. 9, No. 1, pp. 76-81, 3/2000	
	C39	KAGAN, C. R., "Organic-Inorganic Hybrid Materials As Semiconducting Channels In Thin-Film Field-Effect Transistors," Science, Vol. 286, pp. 945-947, 10/29/1999	
	C40	KAPUR, RAVI et al., "Fabrication And Selective Surface Modification Of 3-Dimensionally Textured Biomedical Polymers From Etched Silicon Substrates," Journal of Biomedical Materials Research, Vol. 33, pp. 205-216, 1996	
	C41	KHOO, MELVIN et al., "A Novel Micromachined Magnetic Membrane Microfluid Pump," pp. 1-4, no date	
	C42	KIM, ENOCH et al., "Polymer Microstructures Formed By Moulding In Capillaries," Nature, Vol. 376, pp. 581-584, 8/17/1995	
	C43	KIRK-OTHMER, "Concise Encyclopedia of Chemical Technology," John Wiley & Sons, 5 pages, no date	
	C44	KUMAR, AMIT et al., "Features Of Gold Having Micrometer To Centimeter Dimensions Can Be Formed Through A Combination Of Stamping With An Elastomeric Stamp And An Alkanethiol 'Ink' Followed By Chemical Etching," Appl. Phys. Lett., Vol. 63, No. 14, pp. 2002-2004, 10/4/1993	
	C45	KUMAR, AMIT et al., "Patterning Self-Assembled Monolayers: Applications In Materials Science," Langmuir, Vol. 10, pp. 1498-1511, 1994	
	C46	KWONG, PETER D. et al., "Probability Analysis Of Variational Crystallization And Its Application To gp120, The Exterior Envelope Glycoprotein Of Type 1 Human Immunodeficiency Virus (HIV-1)," Journal of Biological Chemistry, Vol. 274, No. 7, pp. 4115-4123, 2/12/1999	
RK	C47	KWONG, PETER D. et al., "Structure Of An HIV gp 120 Envelope Glycoprotein In Complex With The CD4 Receptor And A Neutralizing Human Antibody," Nature, Vol. 393, pp. 648-659, 6/18/1998	

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Sheet 5 of 7

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Filing Date	March 26, 2004
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RK	C48	LAGALLY, ERIC T. et al., "Monolithic Integrated Microfluidic DNA Amplification And Capillary Electrophoresis Analysis System," Sensors and Actuators B, Vol. 63, pp. 138-146, 2000	
	C49	LAGALLY, E. T. et al., "Single-Molecule DNA Amplification And Analysis In An Integrated Microfluidic Device," Analytical Chemistry, Vol. 73, No. 3, pp. 565-570, 2/1/2001	
	C50	LAMMERINK, T. S. J. et al., "Modular Concept For Fluid Handling Systems," IEEE, pp. 389-394, 1996	
	C51	LI, PAUL C. H. et al., "Transport, Manipulation, And Reaction Of Biological Cells On-Chip Using Electrokinetic Effects," Analytical Chemistry, Vol. 69, No. 8, pp. 1564-1568, 4/15/1997	
	C52	LICKLIDER, LARRY et al., "A Micromachined Chip-Based Electrospray Source For Mass Spectrometry," Analytical Chemistry, Vol. 72, No. 2, pp. 367-375, 1/15/2000	
	C53	LUFT, JOSEPH R. et al., "A Method To Produce Microseed Stock For Use In The Crystallization Of Biological Macromolecules," Acta Cryst., Vol. D55, pp. 988-993, 1999	
	C54	LUFT, JOSEPH R. et al., "Macromolecular Crystallization In A High Throughput Laboratory - The Search Phase," Journal of Crystal Growth, Vol. 232, pp. 591-595, 2001	
	C55	MANZ, A. et al., "Micromachining Of Monocrystalline Silicon And Glass For Chemical Analysis Systems," Trends in Analytical Chemistry, Vol. 10, No. 5, pp. 144-149, 1991	
	C56	MARSHALL, SID, "Fundamental Changes Ahead For Lab Instrumentation," R&D Magazine, 5 pages, 2/1999	
	C57	MARSILI, RAY, "Lab-On-A-Chip Poised To Revolutionize Sample Prep," R&D Magazine, 5 pages, 2/1999	
	C58	MCDONALD, J. COOPER et al., "Fabrication Of Microfluidic Systems In Poly(dimethylsiloxane)," Electrophoresis, Vol. 21, pp. 27-40, 2000	
	C59	MORRIS, DANIEL W. et al., "Automation Of Protein Crystallization Trials: Use Of A Robot To deliver Reagents To A Novel Multi-Chamber Vapor Diffusion Plate," BioTechniques, Vol. 7, No. 5, pp. 522-527, 1989	
	C60	OLDFIELD, T. J. et al., "A Flexible Approach To Automated Protein Crystallization," J. Appl. Cryst., Vol. 24, pp. 255-260, 1991	
	C61	OLESCHUK, RICHARD D. et al., "Analytical Microdevices For Mass Spectrometry," Trends In Analytical Chemistry, Vol. 19, No. 6., pp. 379-388, 2000	
	C62	RESHETNYAK, I. I., "Characteristics Of The Influence Of Ultrasound On The Crystallization Kinetics In Small-Volume Solutions," Sov. Phys. Acoust., Vol. 21, No. 1, pp. 61-63, 7/1975	
RK	C63	RUBIN, BYRON et al., "Minimal Intervention Robotic Protein Crystallization," Journal of Crystal Growth, Vol. 110, pp. 156-163, 1991	

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RK	C64	RUMMEL, GABRIELE et al., "Lipidic Cubic Phases: New Matrices For The Three-Dimensional Crystallization Of Membrane Proteins," Journal of Structural Biology, Vol. 121, pp. 82-91, 1998	
	C65	SADAOUI, NOUREDINE et al., "TAOS: An Automatic System For Protein Crystallization," Journal of Applied Crystallography, Vol. 27, pp. 622-626, 1994	
	C66	SNOOK, CHRISTOPHER F. et al., "Use Of A Crystallization Robot To Set Up Sitting-Drop Vapor-Diffusion Crystallization And *in situ* Crystallization Screens," Journal of Applied Crystallography, Vol. 33, pp. 344-349, 2000	
	C67	SORIANO, THIERRY M. B. et al., "ASTEC: An Automated System For Sitting-Drop Protein Crystallization," Journal of Applied Crystallography, Vol. 26, pp. 558-562, 1993	
	C68	STEVENS, RAYMOND C., "High-Throughput Protein Crystallization," Current Opinion in Structural Biology, Vol. 10, pp. 558-563, 2000	
	C69	THOMPSON, L. F. et al., "Introduction To Microlithography," 185th Meeting of the American Chemical Society, Seattle, WA, pp. 2 cover pages, 1-13, 3/20-25/1983	
	C70	TODD, PAUL et al., "Application Of Osmotic Dewatering To The Controlled Crystallization Of Biological Macromolecules And Organic Compounds," Journal of Crystal Growth, Vol. 110, pp 283-292, 1991	
	C71	VAN DEN BERG, A. et al., "Micro Total Analysis Systems," Proceedings of the μTAS '94 Workshop, University of Twente, The Netherlands, 17 pages, 11/21-22/1994	
	C72	VERPOORTE, ELISABETH M. J. et al., "Three-Dimensional Micro Flow Manifolds For Miniaturized Chemical Analysis Systems," J. Micromech. Microeng., Vol. 7, pp. 246-256, 1994	
	C73	VOGELSTEIN, BERT et al., "Digital PCR," Proc. Natl. Acad. Sci. USA, Vol. 96, pp. 9236-9241, 8/1999	
	C74	WHELEN, A. CHRISTIAN et al., "The Role Of Nucleic Acid Amplification And Detection In The Clinical Microbiology Laboratory," Annu. Rev. Microbiol., Vol. 50, pp. 349-373, 1996	
	C75	WHITESIDES, GEORGE M. et al., "Soft Lithography In Biology And Biochemistry," Annu. Rev. Biomed. Eng., Vol. 3, pp. 335-373, 2001	
	C76	WIENCEK, J. M., "New Strategies For Protein Crystal Growth," Annu. Rev. Biomed. Eng., Vol. 1, pp. 505-534, 1999	
↓	C77	WILBUR, JAMES L. et al., "Lithographic Molding: A Convenient Route To Structures With Sub-Micrometer Dimensions," Adv. Mater., Vol. 7, No. 7, pp. 649-652, 1995	
RK	C78	XIA, YOUNAN et al., "Reduction In The Size Of Features Of Patterned SAMs Generated By Microcontact Printing With Mechanical Compression Of The Stamp," Adv. Mater., Vol. 7, No. 5, pp. 471-473, 1995	

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RK	C79	XU, BING et al., "Making Negative Poisson's Ratio Microstructures By Soft Lithography," Adv. Mater., Vol. 11, No. 14, pp. 1186-1189, 1999	
RK	C80	YANG, XING et al., "A Low Power MEMS Silicone/Parylene Valve," Solid-State Sensor and Actuator Workshop, Hilton Head Island, South Carolina, 4 pages, 6/7-11/1998	
RK	C81	ZAMPIGHI, G. et al., "Structural Organization Of (Na^+ + K^+)-ATPase In Purified Membranes," Journal of Cell Biology, Vol. 98, pp. 1851-1864, 5/1984	

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RK	A8	US-2002-0145231 A1	10-10-2002	Hansen et al.	
RK	A9	US-2003-0061687 A1	04-03-2003	Hansen et al.	
RK	A10	US-2003-0096310 A1	05-22-2003	Hansen	
RK	A11	US-2004-0115731 A1	06-17-2004	Hansen et al.	
RK	A12	US-2005-0019794 A1	01-27-2005	Nassef et al.	
RK	A13	US-2005-0205005 A1	09-22-2005	Hansen et al.	
RK	A14	US-2005-0229839 A1	10-20-2005	Quake et al.	

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RK	C82	"The Liver Chip," Technology Review, pp. 64-67, March 2003	
	C83	BLACK, HARVEY, "Tiny Technology Promises Tremendous Profits," The Scientist, Vol. 15, No. 21, 4 pages, October 29, 2001	
	C84	CHANG, JUN KEUN et al., "Functional Integration Of Serial Dilution And Capillary Electrophoresis On A PDMS Microchip," Biotechnology and Bioprocess Engineering, Vol. 8, No. 4, pp. 233-239, 2003	
	C85	CHAYEN, NAOMI E., "Protein Crystallization For Genomics: Throughput Versus Output," Journal of Structural and Functional Genomics, Vol. 4, pp. 115-120, 2003	
	C86	CHEN, CHIHCHEN et al., "Gray-Scale Photolithography Using Microfluidic Photomasks," PNAS, Vol. 100, No. 4, pp. 1499-1504, February 18, 2003	
	C87	D'ARCY, ALLAN et al., "The Advantages Of Using A Modified Microbatch Method For Rapid Screening Of Protein Crystallization Conditions," Acta Crystallographica, Vol. D59, pp. 1-3, 2003	
	C88	EYAL, SHULAMIT et al., "Velocity-Independent Microfluidic Flow Cytometry," Electrophoresis, Vol. 23, pp. 2653-2657, 2002	
	C89	FITZGERALD, DEBORAH A., "Making Every Nanoliter Count," The Scientist, Vol. 15, No. 21, 8 pages, October 29, 2001	
	C90	GAO, JUN et al., "Integrated Microfluidic System Enabling Protein Digestion, Peptide Separation, And Protein Identification," Analytical Chemistry, Vol. 73, No. 11, pp. 2648-2655, June 1, 2001	
	C91	GARNO, JAYNE C. et al., "Production Of Periodic Arrays Of Protein Nanostructures Using Particle Lithography," Langmuir, Vol. 18, No. 21, pp. 8186-8192, 2002	
	C92	GROVER, WILLIAM H. et al., "Monolithic Membrane Valves And Diaphragm Pumps For Practical Large-Scale Integration Into Glass Microfluidic Devices," Sensors and Actuators B, Vol. 89, pp. 315-323, 2003	
	C93	HANSEN, CARL. L. et al., "A Robust And Scalable Microfluidic Metering Method That Allows Protein Crystal Growth By Free Interface Diffusion," PNAS, Vol. 99, No. 26, pp. 16531-16536, December 24, 2002	
	C94	HANSEN, CARL. L. et al., "Systematic Investigation Of Protein-Phase Behavior With A Microfluidic Formulator," PNAS Early Edition, 6 pages, 2004	
	C95	HOFMANN, OLIVER et al., "Modular Approach To Fabrication Of Three-Dimensional Microchannel Systems In PDMS - Application To Sheath Flow Microchips," Lab on a Chip, Vol. 1, pp. 108-114, 2001	
~~RK~~	C96	HOSOKAWA, KAZUO et al., "A Microfluidic Device For Mixing Of Capillary-Drive Liquids," IEEJ Trans. SM, Vol. 123, No. 1, pp. 23-24, 2003	

Examiner Signature		Date Considered	

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Substitute for form 1449B/PTO **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** *(use as many sheets as necessary)* Sheet 3 of 4	*Complete if Known*	
	Application Number	10/810,350
	Filing Date	March 26, 2004
	First Named Inventor	Carl L. Hansen
	Art Unit	1722
	Examiner Name	Robert M. Kunemund
	Attorney Docket Number	20174C-004960US

NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No.[1]	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T [2]
RK	C97	JUÁREZ-MARTíNEZ, G. et al., "High-Throughput Screens For Postgenomics: Studies Of Protein Crystallization Using Microsystems Technology," Analytical Chemistry, Vol. 74, No. 14, pp. 3505-3510, July 15, 2002	
	C98	KUHN, PETER et al., "The Genesis Of High-Throughput Structure-Based Drug Discovery Using Protein Crystallography," Current Opinion in Chemical Biology, Vol. 6, pp. 704-710, 2002	
	C99	LAGALLY, ERIC T. et al., "Fully Integrated PCR-Capillary Electrophoresis Microsystem For DNA Analysis," Lab On A Chip, Vol. 1, pp. 102-107, 2001	
	C100	LIU, JIAN et al., "A Nanoliter Rotary Device For Polymerase Chain Reaction," Electrophoresis, Vol. 23, pp. 1531-1536, 2002	
	C101	MCDONALD, J. COOPER et al., "Poly(dimethylsiloxane) As A Material For Fabricating Microfluidic Devices," Accounts of Chemical Research, Vol. 35, No. 7, pp. 491-499, 2002	
	C102	NG, JESSAMINE M. K. et al., "Components For Integrated Poly(Dimethylsiloxane) Microfluidic Systems," Electrophoresis, Vol. 23, pp. 3461-3473, 2002	
	C103	NOLLERT, PETER et al., "Crystallization Of Membrane Proteins *in Cubo*," Methods in Enzymology, Vol. 343, pp. 183-199, 2002	
	C104	SANTARSIERO, B. D. et al., "An Approach To Rapid Protein Crystallization Using Nanodroplets," Journal of Applied Crystallography, Vol. 35, pp. 278-281, 2002	
	C105	SASSERATH, J. et al., "Rapid Prototyping And Development Of Microfluidic And BioMEMS Devices," IVD Technology, 12 pages, June 2002	
	C106	STEVENS, RAYMOND C., "The Cost And Value Of Three-Dimensional Protein Structure," Drug Discovery World, pp. 35-48, Summer 2003	
	C107	THORSEN, TODD et al., "Dynamic Pattern Formation In A Vesicle-Generating Microfluidic Device," Physical Review Letters, Vol. 86, No. 18, pp. 4163-4166, April 30, 2001	
	C108	THORSEN, TODD et al., "Microfluidic Large-Scale Integration," Science, Vol. 298, No. 5593, pp. 580-584, October 18, 2002	
	C109	VAN DER WOERD, MARK et al., "Lab-On-A-Chip Based Protein Crystallization," National Aeronautics and Space Administration and Caliper, pp. 1-27, October 25, 2001	
	C110	VAN DER WOERD, MARK et al., "The Promise Of Macromolecular Crystallization In Microfluidic Chips," Journal of Structural Biology, Vol. 142, pp. 180-187, 2003	
	C111	VELEV, ORLIN D., "On-Chip Manipulation Of Free Droplets," Nature, Vol. 426, pp. 515-516, December 4, 2003	
RK	C112	WEBER, PATRICIA C. et al., "Applications Of Calorimetric Methods To Drug Discovery And The Study of Protein Interactions," Current Opinion in Structural Biology, Vol. 13, pp. 115-121, 2003	

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RK	C113	WESELAK, MARK et al., "Robotics For Automated Crystal Formation And Analysis," Methods in Enzymology, pp. 1-13, 2002	
RK	C114	WHITESIDES, GEORGE M. et al., "Flexible Methods For Microfluidics," Physics Today, pp. 42-48, June 2001	
RK	C115	WU, HONGKAI et al., "Fabrication Of Complex Three-Dimensional Microchannel Systems In PDMS," J. Am. Chem. Soc., Vol. 125, No. 2, pp. 554-559, 2003	
RK	C116	YEH, JOANNE I., "A Manual Nanoscale Method For Protein Crystallization," Acta Crystallographica, Vol. D59, pp. 1408-1413, 2003	
RK	C117	ZHAO, ZHAN, et al., "An Integrated Biochip Design And Fabrication," Proceedings of SPIE, Vol. 4936, pp. 321-326, 2002	
RK	C118	ZHENG, BO et al., "A Droplet-Based, Composite PDMS/Glass Capillary Microfluidic System For Evaluating Protein Crystallization Conditions By Microbatch And Vapor-Diffusion Methods With On-Chip X-Ray Diffraction," Angew. Chem., pp 1-4, 2004	

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